



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

WUNDT'S DOCTRINE OF PSYCHICAL ANALYSIS AND THE PSYCHICAL ELEMENTS, AND SOME RECENT CRITICISM.¹

I. THE CRITERIA OF THE ELEMENTS AND ATTRIBUTES.

By EDMUND H. HOLLANDS.

Like every other science at a certain stage of its development, psychology has begun to examine its fundamental pre-suppositions. The questions of the nature of analysis, and of the proper definition of the psychical element, are once more in the forefront of discussion. As usual, Wundt is the great storehouse of texts to be assailed or defended, and the appearance of the fifth edition of the *Physiologische Psychologie*, with its extended treatment of feeling-analysis, has made him still more available for this purpose. Two recent articles by Dr. Washburn are particularly noticeable as having made his treatment of these matters the object of severe criticism.²

This criticism may be summarily stated under four heads. In the first place, in his account of analysis Wundt has failed clearly to distinguish between the criterion of independent *variability* and that of (actual or possible) independent *existence*. Secondly, while he professedly makes his division between classes of elements on introspective grounds, in his recent works the distinction between sensation and feeling is established by an *epistemological* difference. Thirdly, his ground for excluding clearness from the attributes of sensation is either insufficient, or else would rule out intensity and quality themselves; nor is it evident why pleasantness and unpleasantness, among the directions of feeling, should not themselves be attributes. To these three objections, which are found in the first of the two articles mentioned, the second adds a fourth. Wundt's explanation of the unity of feeling as due to the fact that it is a reaction of apperception, and his consequent definition of the simple feelings, make it impossible to distinguish between simple and complex feelings except by an appeal to their sensational basis.

As these criticisms to a large extent furnish the motive for this paper, it will be well to examine the writer's development

¹ From the Psychological Seminary of Cornell University.

² *Philosophical Review*, XI, 445-462; XIV, 21-29.

of them a little more in detail. In doing so, we reproduce the references to Wundt, and, as far as possible, the precise form of the argument.

In the first place, then, Wundt defines an element as "an absolutely simple and unanalyzable conscious process."¹ He intends, therefore, that the process of analysis shall be purely introspective, without physiological or epistemological reference. But what precisely does he mean by the term "unanalyzable?" It may mean that "the bit of conscious content contains no one aspect or part on which attention may be fixed to the neglect of the other aspects." "This would imply that a conscious element could not have attributes," as Prof. Calkins holds, for an attribute *is* precisely an aspect which can be singled out by attention. And the reason why it can be so singled out is, that it is independently variable relatively to its accompanying attribute or attributes. Yet, "it is just this independent variability of two bits of conscious content to which Wundt refers as conditioning their separability by analysis."² How, then, can he refuse to carry his abstraction beyond the 'elements' to the 'attributes?' On the other hand, we may call a mental phenomenon analyzable or unanalyzable according as its constituents can or cannot be experienced apart from each other. For example, the pitch and intensity of a tone, while independently variable, cannot be independently experienced; but the partials of a clang can be so experienced. The latter, therefore, are separable in analysis, under this conception of it, while the former are not. Wundt, the implication seems to be, has not clearly distinguished these two meanings of unanalyzable. The first is in accordance with his own words; but it is only the second which will justify him in not carrying the process of analysis beyond the sensations. He should specify whether we are in our analysis using the "method of calling mental phenomena elementary because they are the simplest phenomena that, being independently *variable*, may be attended to separately," or that of "calling them elementary because they are the simplest phenomena, that, as capable of being *experienced apart* from each other, may be attended to separately."³

The division between feelings and sensations Wundt attempts to base on introspectively perceived differences, chiefly the well-known list of three given in the *Outlines*. But this basis seems insufficient. The fact that the number of feeling qualities is much greater than that of sensation qualities "is evidently no real basis for an ultimate distinction;" and the unitary connectedness of the feeling system is "no ground for

¹ *Outlines*, 28.

² *L. c.*

³ *Phil. Rev.*, XI, 448-453.

denying that feelings may constitute a system of sensations." Wundt's real ground for the division "appears to be extra-psychological, and a matter of epistemological reference." He says that psychological analysis yields us "psychical elements of two kinds, corresponding to the two factors contained in immediate experience, the objective contents and the experiencing subject."¹ He also explains the unitariness of the feeling-manifold "by referring to the 'simple, subjective' origin of feelings as compared with the 'manifold, objective' origin of sensations."² We find still greater emphasis upon this epistemological ground of distinction in the last edition of the *Physiologische Psychologie*.³ "It might well be asked whether psychical analysis naturally and inevitably yields this division, or whether Wundt is led to look for two elements because of his desire to make psychological categories out of subject and object."⁴ These remarks of the first article, it may be noted, are to some extent qualified by a statement in the second.⁵ We are there told that Wundt does not mean by objective and subjective, in this connection, that part of experience which is shared with others and that which is confined to one's self. Indeed we find him explicitly rejecting this meaning.⁶

Clearness, duration and extension Wundt refuses to class with intensity and quality as attributes of sensation. His ground for this refusal is that they depend upon the mental complex in which the sensation is found, clearness as a function of attention, duration and extension as actual products of the complex. "We should then infer that Wundt means by the attribute of a sensation a character that does not spring from the togetherness of sensations, and that is not even influenced in degree by the other surrounding elements." The first of these criteria excludes duration and extension, since "they arise from the togetherness of sensations." But clearness does not so arise. All one can say of it is "that the degree of vividness pertaining to a sensation depends upon its context. A sensation always has some degree of vividness. But, if we refuse to admit under the head of attributes all those characters of sensations which are influenced in their degree or character by their context, it is a question whether we should not have to rule out quality and intensity."⁷ The criticism of the uncertainty as to the precise relation of the feeling-directions to the feeling-qualities, which follows here, we may pass over, as Dr. Washburn in her second article holds that this diffi-

¹ *Outlines*, 28.

² *O. c.*, 36.

³ *Phys. Psych.* (⁵), I, 345.

⁴ *Phil. Rev.*, XI, 454-455.

⁵ *Phil. Rev.*, XIV, 28.

⁶ *Phys. Psych.* (⁵), I, 352.

⁷ *Phil. Rev.* XI, 457.

culty is sufficiently met by considering these directions to be merely classifications indicating general qualitative likenesses.¹ And even if this were not the case, the reference of the three directions to the three temporal aspects of mental process, on which this criticism is based, has disappeared from Wundt's latest discussions of the matter.

These then are the difficulties of Wundt's treatment of analysis and of the elements in general. But they meet us in an intensified form in the case of feeling-analysis, to which so much space is given in the new edition of the *Physiologische Psychologie*. Here, to account for the unity of feeling, "the old apperceptive theory of feeling is invoked, and we are told that the simplicity of feeling-fusions is due to the simplicity of the underlying physiological process, all feelings being connected with activity of a unitary apperception centre."² The question at once arises: "How, then, can introspection, *i. e.*, apperception discover in such unitary feeling-fusions the various elementary feelings?" Wundt's account, when we examine it, makes this difficulty obvious. He defines a simple feeling as "an independently occurring feeling which, while it may enter into combinations with other conscious elements, cannot be divided into other independently existent feelings." But how can one be sure that the components of a presumed simple feeling—for example, the pleasantness and excitement attached to a simple tone—have never occurred separately? Not by direct introspection, for to it the complex and the simple feeling are alike unitary, and besides it is introspection which distinguishes the factors of pleasantness and strain, and all the rest, within the 'simple' feeling. Nor can we appeal to the uniqueness of the sensation to which the feeling is attached, for Wundt argues against feeling being merely feeling-tone of sensation for the precise reason that feelings highly resembling each other may attach to disparate sensations. The only other way open would seem to be to base our distinction of the simple feeling from the complex "on our knowledge that the sensational source of the so-called simple feelings is simple, while the so-called complex feeling is derived from a complex sensational source." At every attempt to make Wundt's account clear, the contradiction between the unity of feeling, as explained by that of apperception, and the analysis of it into indefinite qualitative manifoldness, reappears. The only way to unite these two positions in one system is to refer the manifoldness of feelings to their sensational basis.³

It will be noticed that this criticism is founded entirely on

¹ Cf. *l. c.*, XI, 458 with XIV, 22-23.

² Cf. *Phys. Psych.* (5), II, 341, 357.

³ V. the article, *Phil. Rev.*, XIV, 21 ff.

passages in the first English edition of the *Outlines* and the fifth German edition of the *Physiologische Psychologie*. The critic says that use is made of "general psychological treatises" and not of "special articles," because "we are not seeking to study what kind of analysis our authorities speculate about, but what kind they use."¹ This explanation seems plausible. Indeed, this was perhaps the only method possible in an article which examines the fundamental principles of Ebbinghaus and of Münsterberg, as well as those of Wundt. Nevertheless, there are few writers less suited to its application than Wundt himself. In spite of his systematic tendency, the phraseology of particular passages as one reads them by themselves is often most annoyingly ambiguous. One's difficulty in such a case can only be removed by a comparison of parallel passages elsewhere, by the interpretation of some one who has studied with him, or, these aids failing one, by a careful consideration of the context. Criticism of the letter of brief isolated passages is always open to grave doubt, and nowhere more so than here. Frequently what is left hazy in one work is found to have been filled out in one immediately preceding, or else receives its completion in that which follows.

The purpose of this paper, accordingly, is twofold. In the first place, it will attempt, by an examination of the various passages bearing directly upon the subject in all of Wundt's published writings, to determine his present theory of analysis and the psychical elements, and the various changes through which it has passed. Such a study, it would seem, will have some value for its own sake, and may assist to some extent in definition of Wundtian terminology. It will, therefore, not confine itself to the four topics suggested by the critic, but include the other aspects of the subject, and especially Wundt's discrimination of psychological analysis from that employed by physical science. But, in the second place, and by the aid of the clearer light which may thus be thrown upon the matter, it will attempt to decide whether, and how far, Dr. Washburn's criticisms are justified.

Those writings of Wundt which bear upon our subject may be most conveniently classified according to the position assigned in them to feeling. On this basis, they fall at once into two periods, one extending from 1862 to 1887, in which feeling is treated as feeling-tone of sensation, and the other from 1889 to the present, in which feeling is made an element. But on closer examination, one is able to distinguish four or even five periods. The *first* is that in which feeling is not an ele-

¹ *L. c.* XI, 446.

ment. It includes the *Beiträge zur Theorie der Sinneswahrnehmung*, 1862; the *Vorlesungen über die Menschen- und Thierseele*, 1863; and the first and second editions of the *Physiologische Psychologie*, 1874 and 1880 respectively. The first two of these works may again be distinguished as advocating an epistemological theory, both as to perception and the distinction of feeling from sensation, which the third definitely abandons. The *second* period is one of studies of method. Here we have the *Logik*, 1883; two articles in the first volume of the *Studien*, 1883; and one in the second, 1885. In the *third* period, feeling has become an independent element, but we find no mention of other chief forms of it besides pleasantness and unpleasantness. Here are to be placed the *System der Philosophie*, 1889; an article in the sixth volume of the *Studien*, 1891; the second edition of the *Vorlesungen*, 1892; an article in the tenth volume of the *Studien*, 1894; and the second edition of the *Logik* (*L. der Geisteswissenschaften* II, 2), 1895. A passage in the latter, however, very clearly shows that Wundt no longer regards pleasantness and unpleasantness as adequate classifications of the qualitative variety of feeling. Finally, in the *fourth* period, we have the final definition of the three directions as components of the feeling-manifold, and an increased emphasis upon the importance of feeling. This begins with the first edition of the *Grundriss*, 1896, and includes for our purposes the second edition of the *System der Philosophie*, 1897; the fourth and fifth of the *Grundriss*, 1901 and 1902; and the fifth edition of the *Physiologische Psychologie*, 1902. As will be noticed, the third edition of the *Physiologische Psychologie*, 1887, and the fourth, 1893, have not been included in this list. This is because that portion of them which concerns us here is practically a literal reproduction of the second edition, probably because of the difficulties involved in rewriting a systematic treatise so as to express what was as yet an uncompleted movement in the author's position.

The changes in formal expression as one passes from one of these periods to another are for the most part clear and decisive. This does not mean, of course, that the change in Wundt's theory was equally abrupt. The case is simply that we get only occasional glimpses of the movement of his thought, a hint in an article, perhaps, then finally a formal exposition in some larger work. Public and permanent expression of his views is deferred until he feels that he has some footing in his new position. The special example of this is that to which we have just referred, the long interval from 1880 until 1902, in which, apparently, not a line is added or changed in his most important work to indicate the great change which has taken place in his doctrine of feeling. Not until the whole thing has

been worked out and put in systematic form elsewhere is it incorporated here. Yet, as early as 1883 some passages in the *Studien* show that he had already commenced to move towards his later position.¹ Doubtless a close examination of all his works, including passages which do not concern us here, would reveal many other indications of this gradual shift of emphasis. As it is, however, the division of the material at hand into these periods is perfectly clear and justifiable, and will be found convenient for our purpose.

It will also be convenient, in order to avoid confusion by having too many topics to follow through such a long series of varying expositions, to make a division in our subject-matter. The questions of the nature and method of psychical analysis, of the definition of an element, and of the discrimination of its attributes, are intimately connected, on the one hand; and, on the other, that of the division of elements into the two classes of sensations and feelings, and that of feeling-analysis, involve each other. It is proposed, therefore, in this first section of the paper, to review Wundt's treatment of the first two problems. The second section will discuss his treatment of the other two. What slight repetitions may be involved in this separation of the questions will probably be more than counterbalanced by the advantage of a more ready control of the material.

The first period, as already mentioned, includes the *Beiträge*, the first edition of the *Vorlesungen*, and the first and second editions of the *Physiologische Psychologie*.

In the first two of these works, a peculiar epistemological theory is developed which we shall have occasion to notice more at length later. The pure sensation, the immediate result of the transformation of the physical process into a psychical, is "the not further analyzable element which precedes and conditions perception."² It is so received by Wundt, evidently, as an immediate *datum* of experience, and the conditions of analysis are not discussed. The perceptive process itself is described as one of unconscious judgment, a series of inferences (*Schlüsse*), which again are based on 'primitive judgments' which have material but not psychical content,—that is, are the sources of absolutely given distinctions in sense-experience, physically but not psychologically analyzable.³ The 'inferences' are the sensations corresponding to these distinctions. They have intensity and quality as attributes, the first distinguishing the sensations of like kind, and the second those of different kinds. It is accordingly our task to search for the

¹ *Studien*, I, 5-6, 344 ff.

² *Beiträge*, 424.

³ *Beiträge*, 437, etc. *Vorlesungen*, I, 56-58.

distinct qualities of sensation, which we can regard as simple and pure, being disparate.¹ We find that each such elementary sensation corresponds to a definite physical process. Physical process and psychical element may therefore be regarded as only differing expressions for an identical content.²

It is apparent that in these early works Wundt's psychology has not as yet disentangled itself from his metaphysics and epistemology. The movement of his argument is from sensations as effects to physical processes as causes, rather than from the processes to their effects in sensation. But in spite of the epistemological and teleological coloring, there is an implicit appeal to introspection, the structural intention is obvious, and the two attributes of sensation are indicated by a criterion which is retained later.

In the first edition of the *Physiologische Psychologie*, eleven years later, we find a decided advance. The 'unconscious judgment' theory has entirely disappeared. While the pure sensations are abstractions, never existing as such in consciousness, the psychological facts brought to light by the examination and analysis of representations—for example, of visual ideas—force us to presuppose their existence, and to hold that representations arise from a synthesis of them.³ In other words, the elementary psychical phenomena are discovered by the experimental control and investigation of the physical processes with which they are connected.⁴ By such control they may be separated and experienced in varying contexts. The idea is a connection of a plurality of sensations, in an arrangement either spatial or temporal; and these sensations are the primitive and simple contents of consciousness.⁵ As such man finds them in himself. Abstracted from the spatial, temporal, and other relations to the rest of mental content, the sensation has only the attributes of *intensity* and *quality*. We can picture its existence to ourselves by imagining a statue like that of Condillac beginning to live.⁶

It is true that feeling-tone is also a constituent of the sensation. But it is not, like the intensity and the quality, an original and independent constituent of consciousness. In the first place, it is determined by the intensity and quality of the sensation;⁷ in the second, the feeling-tone disappears, when we consider the sensation by itself, without reference to the consciousness into which it enters, while from intensity and quality we cannot abstract without destroying the sensation.⁸

As for the original constituents of the pure sensation, inten-

¹ *Vorlesungen*, I, 138-140.

² *O. c.*, I, 187-188, 200.

³ *Phys. Psych.* (1), 711-712, 273.

⁴ *O. c.*, 5.

⁵ *O. c.*, 464.

⁶ *O. c.*, 473.

⁷ *O. c.*, 5.

⁸ *O. c.*, 273, 426.

sity and quality, we distinguish them only because they are *independently variable* constituents of every sensation we experience. This independent variability rests on the fact that intensity depends on amplitude or *strength* of the stimulus vibrations, and quality on the *form* of these vibrations, a relation which is evident in simple tones.¹ In other words, we are able, in some cases at least, physically to control this independent variation, and so clearly to exhibit it to introspection. Wundt also defines quality here as "that constituent which remains, when we think away intensity."² This implies another standard of discrimination between attributes,—that of possible abstraction.

This last standard is, however, rejected by the *second* edition. There we are told that we cannot think of quality and intensity as separate; every quality must have a certain intensity, every intensity refer to some quality.³ The criterion which helped to rule out feeling-tone as an attribute in the first edition—that, namely, that it is dependent on intensity and quality—also seems to be tacitly rejected. Wundt says that while feeling-tone, intensity, and quality never appear separately, their separation is an abstraction made necessary by the change in the sensations.⁴ This is obviously the same criterion as 'independent variability' in the first edition. Apparently, then, as far as the explicit treatment here goes, feeling-tone might be on the same footing with quality and intensity as an attribute, were it not perhaps that we have sensations free from feeling-tone,⁵ while all sensations have quality and intensity. The second criterion which excluded it before is, however, retained, for we are told that spatial relation, sometimes made a fourth attribute, is not an attribute of sensations as such, but pertains to their union in ideas. The remark of the *Vorlesungen*, that differing sensations are distinguished by their quality, and similar by their differing intensity, is also repeated, and it is further stated that "it is an immediate fact of inner experience that every sensation has a certain intensity" by virtue of which such comparisons can be made.⁶ Psychological analysis in general is defended on the ground that such an abstraction is as necessary for the examination of mental complexes, as is the similar analysis of chemistry to establish the laws of chemical combination. Unlike chemistry, however, psychology can never experience its elements in actual isolation from the complexes, and hence disputes as to which constituents are really unanalyzable are to some extent possible.⁷

¹ *O. c.*, 280-282.

² *O. c.*, 315.

³ *Phys. Psych.* (2), I, 272.

⁴ *L. c.*

⁵ *O. c.*, I, 272, 465.

⁶ *O. c.*, I, 272, 321.

⁷ *O. c.*, I, 271.

We may then summarize our net result from this first period as follows. *Analysis* is justified in psychology, as in any other science, by the requirements imposed by the investigation of complex phenomena. Its special difficulty here is the fact that its elements never appear in entire isolation. Its method is introspection under experimental control of the conditions, and therefore involves the postulate of a functional connection of mental event with physical stimulus. The fact that marks off the *element* is its separability. While no breach can be made in it, yet it can, under experimental variation of the conditions, be experienced in different mental contexts. That this is Wundt's meaning is perfectly clear, both from his account of analysis, and from his insistence upon independent variability as the test of an *attribute*. There is also a passing reference to direct introspection as confirming the title of the elements—"man finds them in himself."¹ This, however, does not seem to be meant very seriously.

Of criteria for the *attributes* we find four. In the first place, the element is structurally distinguished by quality and intensity. The former is the aspect marking it off from unlike elements, the latter that which distinguishes it from like elements. These two attributes, therefore, and no more, are essential to make the element, as it were, self-contained. In the second place, every sensation has these attributes, and they are inseparable both from it and from each other. Further, these attributes attach to the element itself, and do not depend on its relation to the complex of which it forms a part. Finally, as distinguishing them from each other, we find that they are independently variable and can therefore be attended to separately. As this independence in variation has its physical correlate and cause in the two aspects of the stimulus movement, it can be experimentally controlled and demonstrated.

So far as this carries us, then, Wundt's meaning for 'un-analyzable' would seem to be clearer, on a fair examination, and his grounds for distinguishing the attributes broader, than the criticism with which we began would lead us to suppose. But we must not anticipate conclusions. Let us go on to examine the work of the second period.

This is chiefly interesting as a more detailed and logical account of the method of psychological analysis. Analysis is of three kinds, descriptive, causal, and logical. Only the first two are of use in psychology. In some sciences, such as physiology, descriptive analysis, or the mere separation of an object or phenomenon into its distinguishable elements, forms a necessary and separate preliminary stage. In psychology,

¹ *Phys. Psych.* (1), 273.

however, descriptive and causal analysis are practically coincident. Like physics, it begins with the simplest facts, the causal explanation of which is immediately evident. That of the more complicated phenomena is then arrived at by a synthetic procedure. Causal analysis is distinguished by two factors, the *isolating* of the elements from their coexistents, and the *variation* of them by changing the conditions of their occurrence, in the analytical form of the *experiment*.¹

These principles are most readily examined with reference to the analysis of perceptual ideas. The task of analysis here is twofold; it has to discover the simple sensations, and also to establish the laws of their combination.² These two things usually coincide, since the result of the necessary variation of experimental conditions in the course of the analysis will at the same time determine the laws of combination. The discovery of elements may be *direct*, by synthetic reconstruction of the ideas from them, or *indirect*, by experimental analysis of the idea. The synthetic is the preferable method, but as it presupposes a more complete control of the elements of the idea, implying their appearance in isolation, and their combinability at pleasure, it is possible to apply it exactly only in the case of tonal ideas. Its main use is therefore as an auxiliary method to confirm or guide the indirect method. This latter may be either without external aids, or by the experimental control of the perception under analysis. These two forms of it Wundt calls the simple *analytic* method and the *variation* method. There is, however, no strict distinction between the two. An example of the analytic method is the subjective analysis of a clang. In the case of spatial ideas it is the only form of analysis applicable, because every element of such an idea is itself spatial, and our analysis can only determine minimal magnitudes. In the variation method the variation we introduce may be in the stimulus, in the subject, or in both at the same time.³

Some cautions to the psychologist may be added. It is true that the qualities and laws of the sensations have been established by the psychophysical method, and that this method is practically the beginning of psychology.⁴ But it must be remembered that the reference in it to external stimuli is due only to the general character of experimental method in psychology, and that the real objects of the investigation are the sensations as psychical states.⁵ On the other hand, the logical explanation of a process must not be confused with the process itself, as is so often the case in popular thought;

¹ *Logik* (1), II, 3-5.

² *Cf. o. c.*, II, 487.

³ *Studien*, I, 18-24.

⁴ *Cf. Logik* (1), II, 485.

⁵ *Studien*, I, 5-6.

and psychological analysis must never regard the products of its abstraction as independent processes.¹ The fact is, that simple sensations are never given us in immediate introspection, but are defined because of the requirements of our analysis. It does not follow, however, because they are thus in a sense artifacts, that they are 'unconscious' processes; for mere uncontrolled introspection can no more replace psychological analysis than outward examination of a body can replace its physical or chemical analysis.²

Comment on this discussion is not necessary. What is important in it for our purpose is its caution against invoking physiology on the one hand, or epistemology on the other, to interfere in the task of psychology; and its equal emphasis upon introspection and experimental control. The criterion of the element is still its separability from its context; the process of analysis is one of elimination and reconstruction.

It has already been said that the third edition of the *Physiologische Psychologie* adds nothing to the second. It may, however, be mentioned that in it, apparently for the first time, we find a clear statement of the principle of psychic synthesis as resulting in a new product which possesses qualities not present in its elements. This comes up in connection with the spatial idea, and Wundt adds that the sensational elements of this are discoverable only by an analysis which infers them from the changes which the complex undergoes under differing physiological conditions.³

The third period begins with the *System der Philosophie*. Here we find four reasons for considering that feelings are independent elements. (1) Feeling 'is not objectified,' as sensation is. (2) Experience as a whole has an objective and a subjective side; feelings are the elements of the latter, sensations of the former. (3) The feeling attached to a sensation does not vary in like measure with its intensity or its quality, and is not, therefore, like them an attribute of the sensation. (4) While feeling is always attached to *some* sensational or ideational content, the connection is not invariable; the same content may appear without the feeling, or the same feeling may attach itself to a different content.⁴ It is the last two of these reasons which concern us at present. That for not considering feeling an attribute of sensation is, evidently, equivalent to the fact that its functional relation is not with its sensational basis only. That is, we have an implicit use of the criterion for an attribute which has already been mentioned, that it does not depend on the relation of the element to the

¹ *O. c.*, 344, 349-350.

² *Studien*, II, 299-301.

³ *Phys. Psych.* (3), II, 33.

⁴ *Syst. d. Phil.* (1), 380-387.

complex of which it forms a part. The last reason establishes the right of feelings to the place of elements by the normal criterion. They can be separately experienced in varying contexts. Implicit, of course, is the further but as yet unstated premise that the simple feeling cannot itself be experimentally decomposed into parts which can be thus separately experienced.

The important article *Zur Lehre von den Gemüthsbewegungen*¹ does not bear on the present portion of our subject. Nor is there anything new in the second edition of the *Vorlesungen*,² except a clearer statement of one of the functions of the experiment not dwelt upon before. 'Pure' introspection cannot directly observe conscious processes during their course, but only their after-effects in memory. One must therefore attempt to remove the disturbing influence of accompanying observation upon conscious processes by objective control of the physical processes with which they are functionally connected.³

The fourth edition of the *Physiologische Psychologie* may also be passed over, as has been explained. This brings us to two important discussions of analytic method, which are to be found in an article in the tenth volume of the *Studien*,⁴ and in the second edition of the *Logik*.

In the former, the method of psychology is distinguished from that of epistemology. In both disciplines the analysis of objective perception must start from the given external object. But their method is by no means the same. Epistemology, if it is not to become a "fruitless subjectivism," must, like natural science, presuppose the *objective* nature of the object and all its properties, and then gradually correct, by the aid of suitable hypotheses, the contradictions involved in this assumption. The interest of psychology, however, attaches to the *subjective* formation of the idea of the object. It therefore assumes that the object and all its properties is throughout a subjective process, given immediately in sensation. Contradictions are involved in this assumption also, and these, too, are removed by the aid of hypotheses. Certain elements of the object will prove on examination not to be given immediately, and this necessitates our finding the subjective conditions which have produced them. Every such contradiction has, therefore, a double result. A psychic formation at first regarded as simple is found to be composite, and this implies a psychic process which is the cause of this composition. This defines the real field of psychology, which the materialistic psychologists fail

¹ *Studien*, VI, 337 ff.

² Cf. *Vorlesungen* (²), I4-I7, 68.

³ *O. c.*, I3-I4.

⁴ *Ueber psychische Causalität*, etc. *Studien*, X (1891).

to enter because of their misuse of the epistemological assumption.¹

The discussion in the *Logik* is along the same lines, but the analysis of psychology is contrasted with that of physical science. The differences found are chiefly two. Physical science abstracts from certain *attributes* of the object of its analysis, while psychological analysis isolates *partial contents* of consciousness. These partial contents psychology retains as independent *processes*; but mechanics changes relative into *absolute* attributes. This difference is possible because physical science refers its abstract qualities to a material substrate. Psychology, however, must accept conscious content as a datum which it can analyze into parts, but never reduce to a homogeneous substrate. The chief example of a mistaken attempt at such a reduction is the intellectualistic psychology, which is based partly on the availability of logical technique, and partly on the psychological fallacy of a substitution of the observer's reflections on the mental processes for the processes themselves. It takes the part for the whole, the means of investigation for the thing investigated. To avoid such errors it is essential to remember that our conscious life is one interconnected process.² The more detailed account of the stand-points of Materialism, Intellectualism, and Voluntarism which follows need not detain us now.³

Of more immediate interest for our present purpose is the account here given of the method and criteria of psychological analysis. It follows, we are told, the maxim of *independent variability*. What can vary independently of the rest of the content, or remains constant while the rest of the content varies, is an independent element.⁴ This axiom needs further specification, which we find in a later discussion of *elementary* psychical analysis.⁵ Psychical elements must fulfill the condition of not vanishing in the isolating abstraction applied to the conscious process. Every element is to be considered simple which, in the first place, admits of no separation under experimental variation of the conditions; and, in the second, can be thought of as invariable while the other introspective contents change. The first criterion excludes the forms of space and time; the second excludes these and also other qualitative contents dependent on the presence of many elements. Only pure sensations meet both these conditions, for feelings vanish when the sensation is 'thought away.'⁶ Sensations and ideas

¹ *O. c.*, 82-84.

² *Logik* (2), (*L. der Geisteswissenschaften*) II, 2, 60-63.

³ *Cf. o. c.*, 153-168.

⁴ *O. c.*, 60.

⁵ *O. c.*, 196 ff.

⁶ *O. c.*, 198.

are therefore the only objects of elementary psychical analysis, which may be either qualitative or quantitative.¹ But it does not follow that there are no simple feelings. The idea that all subjectively unanalyzable constituents of consciousness must also be thinkable in isolation is a mere dogmatic prejudice. There are simple unanalyzable feelings, but they cannot be isolated, like the sensations, because they have not an objective reference. The methods of analysis employed for feeling differ, for this reason, from those used for sensation.² Simple feelings are then not *independent* elements.³ Yet they are, of course, elements in the psychological sense, being unanalyzable.

To make these rather puzzling passages clear, it is necessary to anticipate, and to refer for a moment to the fifth edition of the *Physiologische Psychologie*. This mentions two conditions for analysis, an objective and a subjective, as Wundt says: the changing relations of the mental constituents, and the isolating and distinguishing effect of attention.⁴ But this second subjective condition is not mentioned as a condition of feeling-analysis. The criterion for simplicity of a feeling is, that it cannot be separated into simpler feelings appearing independently for themselves.⁵ Actual independent existence is, therefore, the mark of a simple feeling; its appearance for itself, as not further divisible under any change of conditions, and standing in varying relations to the other elements of mental process. This appearance of only the objective condition of analysis in the case of feelings is exactly parallel to what we find in the discussion of the *Logik*, and it is apparent that "thinking of as invariable while the other conscious contents change" means isolation as an object of attention.

This being granted, it would seem that the *Logik* points out three criteria for an element. It must be independently variable; it must admit of no separation within itself under experimental change of the conditions; and it must be capable of isolation as an object of attention. Only the first two, however, are the criteria of the unanalyzable element as such; the third applies only to sensations. But the independent variability is not that which we found in earlier works as distinguishing the two attributes from each other. It is here defined as one in which *all the rest* of conscious content may change. That is, it is the old criterion of being separately experienced in varying connections and contexts; and to it is added the further criterion of non-decomposability. The *Logik* then simply explicates the maxim and criteria of analysis which were ap-

¹ *O. c.*, 200.

² *O. c.*, 199.

³ *O. c.*, 198.

⁴ *Phys. Psych.* (⁵), I, 339-341.

⁵ *Phys. Psych.* (⁵), II, 305.

plied in the *System der Philosophie*. These two criteria cannot, of course, be separated, and on looking back to the first edition of the *Logik* we see that they correspond roughly to what are there called the simple analytic method and the method of variation. The first method introspectively establishes the independence of the element as a part of psychic experience; the second assures us that it is not further decomposable under any alteration in the conditions.

Let us recall that the reprint in unaltered form (so far as our subject goes) of the second edition of the *Physiologische Psychologie* in a third and a fourth carried through the second and third periods the same principles which we found set forth in the first. This being the case, we see that the writings of these two periods have only further explicated and developed those principles. The introspective and specific character of psychological analysis has been emphasized, and the importance and function of the experiment has been more particularly explained. The criterion of non-decomposability, implicit from the first, has been explicitly stated as the necessary completion of the original, that of separability in experience, or, as it is now named, "independent variability." Finally, while the elementary attributes have not come up for further discussion, we found that use was made in the *System der Philosophie* of the criterion of independence on the relation of the element to the complex; and the reference to their independence in variation relative to each other is renewed in the second edition of the *Vorlesungen*.¹

At the opening of the fourth and last period, we find the discussion of analysis and the elements in the first edition of the *Grundriss der Psychologie* rather confusing. Abstraction is necessary in psychological analysis,² and therefore simple feelings are abstracted from their accompanying sensations.³ But, on the other hand, feelings cannot be abstracted from sensations, and are therefore never pure.⁴ Obviously 'abstraction' cannot have the same meaning in these two connections. Apparently the abstraction which assists analysis involves making the element the object of attention to the disregard of remaining conscious content, while that which is not possible for feeling involves the actual *isolation* of the object of attention. Thus, for example, we might conceivably find conditions—say in the dark room of a laboratory—in which some single sensation in the indifference-zone of feeling might be, relatively speaking, the whole content of consciousness. But we cannot

¹ *Vorlesungen* (2), 16-17.

² *Outlines* (1st English ed.), 28.

³ *O. c.*, 29, 76.

⁴ *O. c.*, 37.

conceive the possibility of experiencing a feeling in isolation from *any* sensational substrate whatever.

If this be granted, all we have left in reference to analysis is the admission that the consideration of the element apart from its connection is itself an abstraction,¹ and the explanation that analysis is made possible by the changing relations of conscious contents.² Neither of these principles is new, and they must be interpreted by the longer expositions of analysis which have been already reviewed.

Nor do we find here anything new concerning the attributes.³ What is said, however, is based on the use of the two most important of the four criteria for them; that is, that they are the structurally necessary aspects of the element, and aspects which are free from functional dependence on the rest of conscious content.

The second edition of the *System der Philosophie* contains no new matter relevant to our present subject, except a renewal of the warning against making use in psychology of those hypothetical concepts of substrate which are necessary in physical science.⁴ The fourth and fifth editions of the *Grundriss* are exact reproductions of the first in the sections we have examined.

The justification of psychological analysis which Wundt gives in the fifth edition of the *Physiologische Psychologie* is in much the same terms as the explanations which he had already given in the *Studien* and the *Logik*.⁵ It is unnecessary, therefore, to pause to review it. Yet it is immediately interesting to us, for it shows that Wundt retains his structural position. The elements are analyzed out, it is true, only in order to discover the laws of psychic process; but for that purpose their previous determination is essentially necessary.

The discussion of the method of analysis adds little to our previous conclusions. Its two conditions, objective and subjective, have been already stated. As the elements analyze themselves out, as it were, by their presence in the same form in different combinations, they are in one sense purely empirical. On the other hand, they never exist in isolation and fixity as we conceive them. That is, they are abstract as to their isolation; but they are contents of immediate concrete experience as to their attributes, while the elements of physical science are throughout the products of conceptual abstraction.⁶ While sensations, however, can be abstracted from feelings, feelings cannot be abstracted from sensations.⁷ Accordingly, as

¹ *O. c.*, 29, 38, 76.

² *O. c.*, 28.

³ *Cf. o. c.*, 30-32, 78.

⁴ *Syst. d. Phil.* (²), 361.

⁵ *Phys. Psych.* (⁵), I, 343-344, 357-359.

⁶ *O. c.*, I, 339-342; II, 308; III, 321.

⁷ *O. c.*, I, 352.

we have already seen, Wundt does not mention the isolating effect of attention as a condition of feeling-analysis. Simple feelings he defines as those which cannot be separated into simpler feelings appearing independently for themselves.¹

This definition we have already commented upon, and it has been noticed that Wundt means here by the isolating effect of attention what he has meant in some previous discussions by thinking of an element in abstraction from other conscious contents, or as invariable while they change. All that this treatment then adds to preceding explanations is this more precise description of an auxiliary factor in the analysis of sensations. The objective condition, which is the general condition of both forms of analysis, corresponds to what we have met before as the criterion of the element, its relatively self-sufficient existence in varying relations. It is not stated as clearly as could be desired, but it must be interpreted in accordance with all of Wundt's previous teaching.

What is said concerning the attributes repeats the statements of preceding editions,² except that the recent controversy concerning clearness is faced. All sensations have intensity. But Weber's law does not apply to the sensations in themselves, but to their apperception, without which the quantitative estimate would not be made.³ We find that the physiological view (*e. g.* of Ebbinghaus) regards the *having* of sensations and the *comparing* of them as one and the same thing, while the psychological view decisively distinguishes these experiences. This difference arises because the physiological interpretation avoids psychological analysis. On the other hand, it is an unjustifiable overemphasis of the difference between the physiological and psychological points of view to regard intensity as a physical magnitude, which has been mistakenly introduced into psychology, and therefore to call it a particular direction of quality, or to substitute for it the notion of clearness. The specific character of sensation-intensity, and its occasional functional interdependence with quality, does not prevent its being essentially different from quality. This difference is shown by the fact that we compare as immediately analogous the intensity-changes of the various sense-modalities. And clearness and intensity of sensation are by no means the same. The clear sensation may have slight intensity, and *vice versa*, and the limens for attention and for sensation are found by experiment to be distinct.⁴

Wundt's language here shows that he accepts the position that the intensities of any sense-modality are in a sense as

¹ *O. c.*, II, 305.

² *Cf.*, *e. g.*, *o. c.*, I, 466.

³ *O. c.*, I, 541.

⁴ *O. c.*, I, 551.

specific to it as its qualities. And his final argument against the identification of clearness and intensity involves a new reason, not heretofore stated, and not made explicit here, for not accepting clearness as an attribute. This is, that since the limen for attention and that for sensation are distinct, we have some sensations without any clearness-value.

It is not necessary to sum up the discussions of the fourth period. It adds nothing to those preceding except further exemplification of working-principles, and the statement of the place of attention in analytic method.

Looking over the whole course of Wundt's literary activity, then, it would seem that the principles of analysis which we were able to find in the work of the first period have remained substantially unchanged. The method of analysis, the functions of the experiment, and the distinction of psychological procedure from that of logic on the one hand, and that of physics and physiology on the other, have been far more precisely set forth. But the fundamental principles have remained the same, and, indeed, because of the natural diversion of attention as the field enlarged, are perhaps not so clear in some respects in these later works as in the earlier.

This being true, it would seem that that part of Dr. Washburn's criticism with which we are at present occupied falls to the ground. Wundt's criterion for the elements, in the light of his practice and of all his writing, is precisely that they are "the simplest phenomena that, as capable of being experienced apart from each other, may be attended to separately,"¹ provided we qualify this 'apart from' and 'attended to' so that they do not involve isolation. As we have already stated it, "the fact that marks off the element is its separability, the fact (that is) that while no breach can be made in it, yet it can be experienced in different mental contexts." This is sufficient to distinguish the element from its attributes. The pitch of a simple tone is indeed itself simple; but it cannot move into an entirely different context, because it cannot be experienced without *some* tonal intensity. The simple tone itself, however, may be divorced in experience from all other sensations of sound.

It must be admitted that the passages on this matter in the *Grundriss* and the fifth edition of the *Physiologische Psychologie* have a certain ambiguity, if taken by themselves. The possibility of misconception had probably not occurred to Wundt, and he failed to make his statements sufficiently precise. But his meaning is clear if one considers the use he makes of his

¹ *Ut ante, Phil. Rev.*, XI, 453.

principles in these same works, and still more so when one calls his earlier works to aid.

As for the attributes, we have found that Wundt makes use of four criteria to distinguish them, instead of merely the one to which the critic refers. One of these is systematic; the two attributes of quality and intensity are necessary and also sufficient to make the element self-contained as structural. Another, that of independent variability, allows us to hold the two attributes apart from each other. Finally, as immediate marks of the attributes, we have the introspective fact that all elements have these attributes as inseparable peculiarities, and that they are independent of the relation of the element to the complex. Wundt, as has been seen, would hold that clearness is ruled out as an attribute under both of these last two heads. The sensation comes above the limen before clearness attaches to it.

It would certainly seem, therefore, that the critic has, in this question of the attributes especially, relied too much on the wording of one or two isolated passages. It is true that all four of these reasons for selecting quality and intensity as the elementary attributes are not stated with equal clearness by Wundt. But they are those which he uses,—and that is the important point, as Dr. Washburn herself suggests.